

REMARKS

Claims 1, 3-6, 8-18, 21-32, 34-41, 43-50 and 52-57 are pending and at issue in the application with claims 1, 17, 29, 38 and 49 being independent claims. No claims have been amended, added or cancelled in this response. Reconsideration and withdrawal of the rejections in view of the remarks below is respectfully requested.

Claims 1, 3-6, 8-18, 21-32, 34-41, 43-50 and 52-57 are rejected as unpatentable over Liebowitz et al. (U.S. Patent No. 5,812,545) in view of Toporek et al. (U.S. Patent No. 6,460,085). The applicants respectfully traverse the rejections.

Each of independent claims 1, 17, 29, 38 and 49 recites a method or system of transmitting data through a communication link, the method or system including, among other things, establishing a plurality of worker objects (or processes) where each of the plurality of worker objects or worker processes is capable of forming and delivering a message to an underlying layer of each of a plurality of communication connections of the communication link. A separate communication connection is associated with each worker object or worker process.

Simply put, the combination of Liebowitz et al. and Toporek et al. does not disclose or suggest each of the limitations of claims 1, 17, 29, 38 and 49. In particular, neither Liebowitz et al. nor Toporek et al. disclose the recited worker objects (or processes) and the tasks related to the worker objects (or processes), such as establishing a worker object for each one of a plurality of communication connections, distributing data amongst the worker objects and forming messages using the worker objects.

Liebowitz et al.

Independent Claims 1, 17, 29, 38 and 49

As an initial matter, the action of July 12, 2007 already acknowledged that Liebowitz et al. does not explicitly disclose establishing a worker object for each one of the plurality of communication connections, distributing data amongst worker objects and forming messages using worker objects (see e.g., 7/12/07 action, page 5). The present action now asserts that Liebowitz et al. discloses these tasks, with newly-referenced col. 4, lines 35-50 cited as disclosing establishing worker objects (or processes) for each of a plurality of communication connections. In reviewing the action, it is unclear what element(s) in Liebowitz et al. are being referred to as the recited worker objects or worker processes. In particular, the action

appears to cite either the data queues 63 or the Frame Handlers 64 as the recited worker objects (or processes). Nonetheless, neither the data queues 63 nor the Frame Handlers 64 correspond to the recited worker objects or worker processes, either individually or in combination. As a consequence, Liebowitz et al. does not disclose the tasks associated with the worker objects (or processes), such as establishing a worker object for each one of the communication connections, distributing data amongst worker objects and forming messages using worker objects.

Liebowitz et al. generally discloses a mesh satellite communications system between a terminal 12 and a satellite 14. (See e.g., Fig. 1). The terminal 12 includes a Fragment Assembler/Disassembler (FAD) 66 that receives data frames from different access devices 42 via a Frame Handler 64 for each access device 42. The FAD 66 creates an outgoing data queue 63 to store data frames from each access device 42, breaks each data frame into fragments, and stores as many fragments as possible in a burst buffer 68. The collection of fragments form a payload 108 with a payload header 106. The burst buffer 68 further stores bandwidth requests for transmission in the payload header 106. (See column 4, lines 30-67).

Liebowitz et al. discloses multiple data queues 63, but the data queues 63 correspond to communication connections with which data *originates* (i.e., the data access devices) and not with communication connections to which messages are *delivered* (i.e., connections with the satellite 14). (See e.g., column 4, lines 43-47). As such, while it is correct that each data queue 63 corresponds to a communication connection, the communication connections are to *receive* the data from the data access devices, not to *deliver* the data as messages (e.g., to the satellite 14). Indeed, even the messages to be delivered (e.g., payload 108 and payload header 106) are not formed in or by the data queues 63, but rather in the burst buffer 68. The data queues 63 are therefore not the recited worker objects or worker processes. As noted in the action, each of independent claims 1, 17, 29, 38 and 49 generally involve delivering messages from each worker object or worker process to an underlying layer of the plurality of communication connections (e.g., a communication link). Accordingly, if the data queues 63 are not associated with delivering messages, but instead receiving messages, then the data queues 63 cannot correspond to the recited worker objects (or processes).

Likewise, Liebowitz et al. discloses a Frame Handler 64 for each port 40, with each port 40 corresponding to the data format of a particular data access device 42. (See e.g., column 4, lines 30-39; Fig. 4). Accordingly, as with the data queues 63, while it is correct

that each Frame Handler 64 corresponds to a communication connection, the communication connections are to *receive* the data from the data access devices, not to *deliver* the data as messages to the satellite 14. Further, the messages to be delivered (e.g., payload 108 and payload header 106) are formed in the burst buffer 68, rather than in or by the Frame Handlers 64. The Frame Handlers 64 are therefore not the recited worker objects or worker processes. Again, as noted in the action, each of independent claims 1, 17, 29, 38 and 49 involve delivering messages from a worker object or worker process to an underlying layer of the plurality of communication connections (e.g., a communication link). Accordingly, as with the data queues 63, if the Frame Handlers 64 are not associated with delivering messages, but instead receiving messages, then the Frame Handlers 64 cannot correspond to the recited worker objects (or processes).

Accordingly, while individual aspects of Liebowitz et al. may appear to disclose various features of independent claims 1, 17, 29, 38 and 49, Liebowitz et al. does not disclose the same arrangement of the features as provided in independent claims 1, 17, 29, 38 and 49, because there is no aspect of Liebowitz et al. that corresponds to the recited worker objects (or processes). In other words, the data queues 63 and Frame Handlers 64 of Liebowitz et al., and the tasks associated therewith, do not correspond to the recited worker objects (or processes), and the tasks associated therewith. Indeed, because the data queues 63 and Frame Handlers 64 do not correspond to communication connections to *deliver* the data as messages to the satellite 14 (which has been acknowledged as much in the action; see e.g., page 4), it does not stand to reason that features associated with *receiving* data would correspond with worker objects (or processes) associated with *delivering* data.

It is clear that in order for a claim to be rendered *prima facie* unpatentable, “[all] words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). See MPEP 2143.03. As required by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007) (*KSR*), the differences between the claimed invention and the prior art must still be ascertained, and both the invention and the prior art references must be considered as a whole. See also *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), MPEP 706.02(j) and MPEP 2141. There is a further requirement that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of

obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). This requirement was upheld by the Supreme Court in *KSR* (see 82 USPQ2d at 1396). (See also MPEP 2142). In short, when formulating an obviousness rejection based upon a combination of prior art elements, it remains necessary to identify where each of the claim features are disclosed in the prior art and to identify a reason why a person of ordinary skill in the art would have combined the prior art elements *in the manner claimed*. See *KSR* 82 USPQ2d at 1397. If all claims limitations are not disclosed and/or the resulting combination do not result in the invention in the manner claimed, then the rejection must be withdrawn. The actions thus far have been unable to point to disclosure of the recited worker object (or process) and associated tasks in the manner claimed. As a consequence, the current rejections must be withdrawn.

Independent claims 17 and 29

Still further, Liebowitz et al. does not render either of independent claims 17 or 29 unpatentable, because Liebowitz et al. does not disclose or suggest a one-to-one correspondence between the plurality of worker processes and the plurality of partitioned data streams. In particular, the action first appears to cite the data queues 63 (or the Frame Handlers 64) as the recited worker objects or worker processes, and then proceeds to cite the agents of Liebowitz et al. as the recited worker objects. (See action, page 12 quoting column 4, lines 15-24: “via software modules called agents”). This is inconsistent. As stated above, each of the claim features must be disclosed in the prior art and a reason must be identified as to why a person of ordinary skill in the art would have combined the prior art elements *in the manner claimed*. To the extent the action relies upon a particular reference as disclosing a particular feature of the claim, that feature must be disclosed in the same manner as claimed. Accordingly, if the action has to cite different elements of Liebowitz et al. (i.e., data queues, Frame Handlers, agents) as corresponding to the recite worker objects (or processes), then none of those elements can correspond to the recited worker object, because no one element of Liebowitz et al. corresponds to the recited worker object in the manner claimed.

The action further appears to cite the real time data and non-real time data as relating to the partitioned data streams. (See action, page 12 quoting column 5, lines 7-22 which reads in part ““the priority scheme preferably provides at least two primary levels of priority . . . The first primary priority level is for real time data. The second primary priority level is

for non-real time data.”). The data is partitioned into real time data and non-real time data, with data queues 70 provided for the real time data and data queues 72 provided for the non-real time data. Data queues 74 are provided for Ethernet data. In citing this portion of Liebowitz et al., the action appears to rely upon the Frame Handlers as the recited worker objects (or processes). However, as seen in Fig. 4, the Frame Handlers 64 do not have a one-to-one correspondence with the data queues 70, 72, 74. Instead all data from all Frame Handlers 64 are generally provided to the all data queues 70, 72, 74 where the data is then stored according to type. While the action may be correct in asserting the data is partitioned based on data type (e.g., real time, non-real time, Ethernet), there is no disclosure that each Frame Handler 64 corresponds to a particular data type. As such, there can be no one-to-one correspondence between the Frame Handlers 64 (i.e., the asserted worker objects or worker processes) and the types of data (i.e., the asserted partitioned data streams). Although data queue 74 may correspond to a virtual circuit, the virtual circuit corresponds to multiple data queues 63 and sources 42 (and hence multiple Frame Handlers 64) of Ethernet frames, so again there is no one-to-one correspondence between the Frame Handlers 64 and the type of data. (See e.g., column 5, lines 17-29).

Independent claims 38 and 49

Liebowitz et al. further does not render either of independent claims 38 or 49 unpatentable, because Liebowitz et al. does not disclose or suggest a time between calls parameter as one of a uniquely configurable set of parameters for each worker object or worker process. In particular, the action now appears to cite the burst queues 68 as the recited worker objects (or processes), given the burst queues 68 store fragments using the data from the user access devices 42 for burst transmissions from the TDMA modem 54 as controlled by the TDMA modem controller (TMC) 76. (See action, pages 13 and 14 quoting column 21, lines 33-39 which reads in part “said processor being operable to generate bursts using data received from said user access devices ...” as compared with column 4, lines 51-67 and column 5, lines 49-57). Again, this is inconsistent with the earlier reliance on the data queues 63 (or Frame Handlers 64) as the recited worker objects (or processes), and demonstrates that no one element of Liebowitz et al. corresponds to the recited worker objects (or processes).

The action further appears to cite the timing indicator as the recited time between calls parameter. (See action, page 14 quoting column 5, lines 50-67 which recites in part “[the] FAD 66 also sends a timing indicator to the TMC 76 indicating the precise time it can transmit a burst.”). However, the timing indicator is based on a burst plan (see e.g., Table I) for the entire FAD 66 (and hence the entire terminal 12), as opposed to a parameter of the data queues 68. The burst plan controls when the terminal 12 can send a burst to ensure only one terminal 12 transmits during a burst duration or slot in a TDMA frame. (See e.g., column 5, lines 52-57). Accordingly, the timing indicator is associated with the FAD 66 and the terminal 12 as a whole rather than uniquely associated with each burst queue 68. By contrast, each of independent claims 38 and 49 involve a set of communication connection parameters uniquely associated with each of a plurality of worker objects (or processes), which includes a time between calls parameter.

As a further matter, the action acknowledges that Liebowitz et al. does not disclose a separate communication connection through the communication link and each of the plurality of worker objects including a set of communication connection parameters that are uniquely configurable to determine the manner in which the messages are sent to an underlying layer of the communication link (see e.g., action, page 14), as recited in independent claims 38 and 49, while at the same time asserting that Liebowitz et al. discloses instantiating a separate communication through the communication link. However, if Liebowitz et al. does not disclose a separate communication connection through the communication link, then it is impossible for Liebowitz et al. to disclose instantiating a separate communication through the communication link. Accordingly, given the action’s acknowledgement, it must hold that Liebowitz et al. does not disclose instantiating a separate communication through the communication link, in addition to not disclosing each of the plurality of worker objects including a set of communication connection parameters that are uniquely configurable to determine the manner in which the messages are sent to an underlying layer of the communication link.

Toporek et al.

As noted above, the action acknowledges that Liebowitz et al. does not disclose delivering the messages formed within each worker object (or process) to an underlying layer of the plurality of communication connections (see e.g., action, page 4), as recited in

independent claims 1, 17 and 29, or a separate communication connection through the communication link, where each of the plurality of worker objects includes a set of communication connection parameters that are uniquely configurable to determine the manner in which the messages are sent to an underlying layer of the communication link, as recited in independent claims 38 and 49. For this reason, the action cites Toporek et al. However, contrary to the action, Toporek et al. also does not disclose delivering messages formed within each worker object (or process) to an underlying layer of the plurality of communication connections using a parameter of that work object in a manner so that each communication connection uses no more than a predetermined portion of the bandwidth, as recited in each of independent claims 1, 17 and 29. In a similar manner, Toporek et al. does not disclose a separate communication connection through the communication link, where each of the plurality of worker objects includes a set of communication connection parameters that are uniquely configurable to determine the manner in which the messages are sent to an underlying layer of the communication link, as recited in each of independent claims 38 and 49.

As with Liebowitz et al. above, Toporek et al. does not disclose any mechanism for establishing a worker object (or process) for each one of a plurality of communication connections, nor has Toporek et al. been cited for this purpose. However, as a consequence, while Toporek et al. discloses a method of controlling flow of information over a satellite communication link using a plurality of communication connections, Toporek et al. does not disclose a plurality of worker objects (or processes) where each of the plurality of worker objects is capable of forming and delivering a message to one of the plurality of communication connections. Instead, Toporek et al. discloses a rate control module which is used to determine whether information should be passed over to one of the plurality of communication connections or queued for later delivery. As a matter of fact, the rate control module disclosed in Toporek et al. determines the bandwidth to be used by any given communication connection based on the usage of all of the plurality of communication connection, thus, it does not provide that each of the plurality of communication connections uses no more than a predetermined portion of the bandwidth of the communication link, as recited by each of independent claims 1, 17 and 29, or provide that a separate communication connection through the communication link, where each of the plurality of worker objects including a set of communication connection parameters that are uniquely configurable to

determine the manner in which the messages are sent to an underlying layer of the communication link, as recited by each of independent claims 38 and 49.

Moreover, because Toporek et al. uses only a single rate control module to manage messages communicated to the plurality of communication connections wherein the rate control module determines delivery of messages to each of the plurality of communication connections based on the availability of all of the communication connections, one of ordinary skill in the art would not look to modify the rate control module in a manner so as to provide a plurality of worker objects wherein each of the plurality of worker objects manages messages delivered to only one of the plurality of communication connections.

Accordingly, not only does Toporek et al. not disclose the recited worker objects (or processes), Toporek et al. does not disclose using the worker objects (or processes) as recited in each of the claims. As noted above, when formulating an obviousness rejection based upon a combination of prior art elements, it remains necessary to identify where each of the claim features are disclosed in the prior art such that the combination is the same as in the manner claimed. Because all claims limitations and the resulting combination do not result in the invention in the manner claimed, the rejections against the claims must be withdrawn.

Rationale to Combine or Modify the References

None of claims 1, 3-6, 8-18, 21-32, 34-41, 43-50 and 52-57 are rendered obvious over Liebowitz et al. and Toporek et al., because a person of ordinary skill in the art would not combine the teachings of Liebowitz et al. and Toporek et al. as asserted in the action. It is clear that obviousness can only be established by identifying a rationale or reason as to why a person of ordinary skill in the art would have combined or modified the prior art elements *in the manner claimed*. Not just any reason will do. If the asserted rationale does not provide a reason for combining Liebowitz et al. and Toporek et al. in the same manner as recited in the claims, then it cannot be obvious to combine the references.

The action asserts that one of ordinary skill in the art would modify Liebowitz et al. in the manner disclosed in Toporek et al. “in order to provide a method for managing memory for buffering information communicated over an internet connection established across a satellite link.” (See e.g., action, page 4). However, because the claims involve transmitting or delivering data, it must hold that the features relied upon in the action also relate to transmitting or delivering data. However, as noted above, the action’s citations to Liebowitz

et al. relate to *receiving* data, not *delivering* data, as acknowledged in the action.

Accordingly, to the extent the features relied upon in Toporek et al. relate to delivering data (as asserted in the action), one of ordinary skill in the art would not combine features from one reference related to *receiving* data (i.e., Liebowitz et al.) with features of another reference related to *delivering* data (i.e., Toporek et al.).

Conclusion

As such, it is clear that neither Liebowitz et al. nor Toporek et al. disclose or suggest the recited worker objects (or processes) or the associated tasks. It is further clear that the asserted rationale does not provide a reason for a person of ordinary skill in the art to combine Liebowitz et al. and Toporek et al. in the manner claimed. As such, none of claims 1, 3-6, 8-18, 21-32, 34-41, 43-50 and 52-57 are rendered obvious over Liebowitz et al. and Toporek et al.

The applicants note that the present application has now undergone several official actions, with each of the actions having been successfully overcome as distinguishing the claims over the cited references. Indeed, at one time it was found that the claims were patentable over all the references of record, including Liebowitz et al. and Toporek et al. However, as with many of the previous actions, the present action issues new rejections based new citations and/or new combinations of previously-cited references. Accordingly, the applicants believe it has been demonstrated to a significant degree that the claims of the present application are patentable over the references of record, including Liebowitz et al. and Toporek et al., and, for the foregoing reasons, respectfully request reconsideration and withdrawal of the rejections of the claims and allowance thereof.

Five (5) independent claims remain in the application as previously paid for, and forty-nine (49) total claims remain in the application as previously paid for. This response is being timely filed with a two-month extension of time and the requisite extension fee of \$460.00. The applicants believe no additional fee is due. However, the Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fees which may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 13-2855. Should the examiner wish to discuss the foregoing, or any matter of form, in an effort to advance this application towards allowance, the examiner is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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By 
Aaron M. Peters

Registration No.: 48,801
MARSHALL, GERSTEIN & BORUN LLP
233 S. Wacker Drive, Suite 6300
Sears Tower
Chicago, Illinois 60606-6357
(312) 474-6300
Attorneys for Applicants